

REMARKS

Claim 1 has been amended by incorporation of the limitations of claim 25, now canceled, and by further defining the nature of the sensitizer as taught in paragraphs [0027] and [0028] of applicants' substitute specification. Note that, as taught in paragraph [0073] of applicants' substitute specification, a small particle size is important in the context of the present invention.

The claims as presented here are identical to those proposed to the Examiner in advance of a personal interview on May 7, 2009. The remarks which follow are identical to those accompanying the proposed amendment faxed to the Examiner on May 1, 2009 (copy attached), with exception of addition of the remarks which follow on the substance of the interview of May 7, 2009 and correction of the second sentence at the top of page 11 of the proposed, draft amendment of May 1st. Ichimura et al do disclose a photopolymerization reaction (photodimerization) which may include cross-linking (column 6, lines 10-25), but not acid-catalyzed photopolymerization.

The undersigned hereby thanks Examiners Johnson and Kelly for their time and trouble in connection with the interview on May 7th. At the outset of the interview, Examiner Johnson stated that, based on the remarks of the proposal of May 1st, she now recognizes the distinction between (1) the acid-catalyzed reaction by which Ichimura et al synthesize their photosensitive resins and (2) the photopolymerization of compositions containing those photosensitive resins, which reaction is not acid-catalyzed. Therefore, as indicated by the Examiner's "Interview Summary", the rejections based on Ichimura et al will be withdrawn.

One point of clarification, the Examiner's statement of the "Substance of Interview", on the "Interview Summary" form, is correct if the "polyvinyl alcohol and styryl compound" is understood to be the photosensitive resin described at column 2, line 14 to column 3, line produced by "condensation" as described at column 6, line 60 to column 7, line 39.

An object of the present invention is to provide a radiation-sensitive resin composition, i.e. a composition not yet exposed to radiation, which can be developed with neutral water. See paragraph [0012] at page 7 of applicants' substitute specification and claims 33-35. In order to achieve the foregoing objective, the claimed invention uses an acid former and a sensitizer which are in the form of solid particles dispersed (rather than dissolved) in the water (rather than an organic solvent). The present inventors are the first to find that an acid former in the form of fine powder dispersed in water in the copresence of a sensitizer in the form of fine powder can effectively generate an acid upon being irradiated with activation ray energy. Uniquely with the present invention, excellent patterns with high resolution may be obtained even when the acid former and sensitizer are in the form of solid particles dispersed in water. See paragraph [0073] at page 30 of applicants' substitute specification.

Ichimura et al disclose at column 1, lines 38-63 as prior art, the following two types of photosensitive compounds.

The first one is a saponified poly(vinyl acetate) (referred to as PVA) to which a styrylpyridinium salt or styrylquinolinium salt (referred to as Sty) is grafted. The graft reaction proceeds as follows (see Comparative Example 7-1 on columns 13-14).



The obtained photosensitive compound PVA-Sty undergoes photodimerization when irradiated with light as follows:

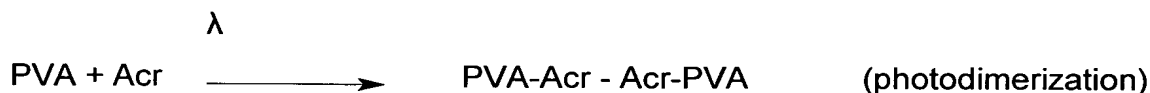


The first type of photosensitive compound PVA-Sty has a disadvantage because of its poor water resistance.

The second one is PVA to which N-methylolacrylamide or N-methylolmethacrylamide (referred to as Acr) is grafted. The graft reaction proceeds as follows (see Comparative Example 7-2 at column 14).



The obtained photosensitive compound PVA-Acr undergoes photodimerization when irradiated with light as follows:



The second type of photosensitive compound PVA-Acr has a disadvantage because of its low resolving power.

Ichimura et al pertains to improvement of the above photosensitive compounds. As described at column 6, line 60 to column 7, line 39, the photosensitive composition of Ichimura et al is prepared by condensation reaction of (1) PVA, (2) Sty and (3) Acr in the presence of an acid catalyst. In the working examples, Ichimura et al use phosphoric acid as the catalyst. The condensation reaction is as follows.

I.



The obtained photosensitive compound Acr-PVA-Sty undergoes photodimerization when irradiated with light as follows:

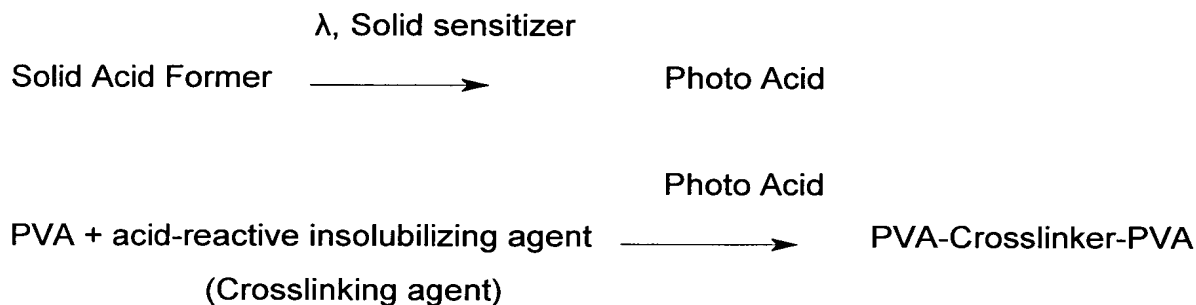
II.



While reaction I above is an acid catalyzed reaction (without generation of an acid), reaction II (with addition of a polymerization initiator after I) is not an acid-catalyzed reaction. In the office action of December 24, 2009 the Examiner repeatedly confuses the two.

The photosensitive composition Acr-PVA-Sty has improved water resistance and improved resolving power (see column 5, line 45 to column 6, line 25). The photosensitive composition Acr-PVA-Sty may optionally contain PVA-Sty and/or PVA-Acr, if desired (column 6, lines 26-59).

In contrast, the chemistry involved in the present invention is as follows:



The second reaction above can be characterized as acid-catalyzed cross-linking.

A. The Rejection of Claims 15-19, 21-24, 26, 28, 29, 32, 33, 35 and 36 for Obviousness Over Ichimura et al in View of Fansler et al and Ushirogouchi et al.

It is respectfully submitted that the teachings of Ichimura et al have little or no relevance to applicants' invention as defined by the pending claims because the compositions of Ichimura et al do not undergo an acid-catalyzed cross-linking reaction and do not contain (1) an acid former capable of generating an acid when irradiated with light, (2) a sensitizer in the form of particles or (3) an acid-reactive

insolubilizing agent (crosslinker) dissolved or dispersed in water for crosslinking a water-insoluble resin in the presence of an acid.

1. The Compositions of Ichimura et al, do Not Contain an Acid Former.

In paragraph 12 of the office action the Examiner errs where she writes:

“Ichimura teaches the photosensitive composition comprises an acid catalyst (col. 7, lines 37-39). Although not exemplified by specific examples, Ichimura does teach an acid catalyst in the photosensitive composition.”

In Example 1, Ichimura et al teach that polyvinyl acetate, dissolved in water, is reacted with N-methyl-4-(p-formyl-stryl)-pyridinium methosulfate and N-methylolacrylamide in the presence of phosphoric acid (acid catalyst). The acid catalyst of Ichimura et al catalyzes the graft reaction between PVA and the photosensitive units (Sty and Acr), resulting in the formation of the polymer Acr-PVA-Sty. However, that reaction system used in formation of one component of the photosensitive composition of Ichimura et al should not be confused with the photosensitive composition in which the photosensitive polymer Acr-PVA-Sty is present in admixture with 2,4-diethylthioxanthone (a photo-sensitizer) and ethyl p-dimethylaminobenzoate (a photopolymerization initiator).

It should also be noted that the phosphoric acid used in the grafting reaction taught by Ichimura is itself an acid, not an acid donor which generates an acid when irradiated with activation energy, as recited by claim 1 here.

In the present invention no acid, such as phosphoric acid, can be present in the claimed photosensitive composition because, otherwise, the photosensitive composition would undergo acid-catalyzed crosslinking even in the absence of light.

Parenthetically, the Examiner also errs in interpretation of Example 1 of Ichimura et al where she writes at the bottom of page 2 of the office action:

“Ichimura teaches a photosensitive composition comprising a styrylpyridinium salt compound, a polyvinyl acetate derivative and a light polymerizable ethylenically unsaturated compound (col. 6, lines 63-67 and col. 7, lines 1-39). Example 1 shows that the polyvinyl acetate derivative is dissolved in water (col. 7, lines 54-57).”

True, Example 1 of Ichimura et al does describe dissolution of polyvinyl acetate (PVA) in water. However, at the point in the process of Ichimura et al Example 1, where the polyvinyl acetate is dissolved in water, the polyvinyl acetate is not photosensitive. This reaction is the condensation reaction described at col. 6, lines 60 - col. 7, line 39 of Ichimura et al. The “photosensitive units” in the photosensitive composition of Ichimura et al are those units (“first and second groups”) grafted onto the backbone of the polyvinyl acetate, as taught at col. 5, lines 55-67. Only after reaction with N-methyl-4-(p-formyl-styryl)-pyridinium methosulfate and N-methylolacrylamide is the photosensitive resin formed and only after that formation is the composition to be developed by exposure to light formulated. Note the addition, only after the grafting reaction, of 2,4-diethylthioxanthone (a photosensitizer) and ethyl p-dimethylaminobenzoate (a photopolymerization initiator).

2. The Compositions of Ichimura et al, do Not Contain a Sensitizer in the Form of Particles.

The Examiner acknowledges this distinction at the top of page 4 of the office action.

3. The Compositions of Ichimura et al, do Not Contain an Acid-reactive Insolubilizing Agent (crosslinker).

At the top of page 4 of the office action the Examiner notes that the reaction between the PVA and the styrylpyridinium salt compound taught by Ichimura et al is a crosslinking reaction. That may be true, but is not relevant to the alleged obviousness of incorporating an acid-reactive insolubilizing agent into the composition thereafter formulated which, upon exposure to light, undergoes a photopolymerization (photodimerization) which is not acid-catalyzed.

B. The Allegedly Obvious Modification of Ichimura et al in View of Fansler

The Examiner misinterprets Fansler at page 4 where she writes: "However, Fansler teaches a photosensitive composition comprising a polyvinylalcohol and a photoacid generator dispersed therein." Paragraphs [0031] and [0032] of Fansler teach that their "acid donor" is present in an "acid donor layer" 14. Nowhere does Fansler suggest the presence of an "acid donor" in the separate and distinct vinyl alcohol polymer layer 16. Neither an acid nor an acid donor is present in the PVOH layer 16 prior to exposure. When the "prepolarizing article 10" of Fansler is exposed to radiant energy while being heated, a generated photoacid migrates and diffuses into the PVOH polymer layer to catalyze the dehydration thereof, thereby producing conjugated blocks of poly(acetylene) ([0074]). The exposed article is used as a polarizer. Upon exposure, nothing migrates into the photosensitive composition (PVOH layer) in the form of solid particles. The "acid donor" itself (as opposed to the "photoacid" which it generates) does not migrate into the PVOH layer in any form.

At page 4 of the office action the Examiner, with reference to Fansler, writes:

"The photoacid generators form acid in the composition and increase sensitivity to actinic radiation. Ichimura teaches the same (col. 6, lines 31-35)."

The undersigned can find no such teaching in Fansler, i.e. a teaching suggesting that the photoacid generators "increase sensitivity [of what?] to radiation." Further, Ichimura et al do not even mention a photoacid generator. Thus, the Examiner's "reason" for modifying the photosensitive compositions of Ichimura to include the acid donors of Fansler does not exist.

At page 11 of the office action the Examiner notes that Fansler "teaches that the acid donor layer comprises a photoacid generator and a polymer (page 3, [0033])." The Examiner apparently assumes, incorrectly, that the combination of a resin (or polymer), a photoacid generator and a sensitizer for the photoacid

generator would give a photosensitive layer analogous to that of Ichimura et al. However, upon exposure, the resin in the donor layer of Fansler does not undergo any chemical change and, thus, is not analogous to either (1) the reactive composition of Ichimura et al from which the photosensitive graft copolymer is prepared (reaction I of Ichimura et al) or (2) the photosensitive composition of Ichimura et al) which undergoes the image-forming photodimerization reaction (reaction II of Ichimura et al). In other words, the donor layer of Fansler cannot be a photosensitive layer in the context of Ichimura et al.

Further, Fansler teaches that the polymer of the acid donor layer may be hydrophobic, whereas the PVA layer of Ichimura cannot be hydrophobic.

Still further, it is considered inappropriate to combine components of a solid coating as taught by Fansler with an aqueous coating composition, for example, as produced in Example 1 of Ichimura et al.

C. Modification in View of Ushirogouchi et al

The Examiner apparently relies upon Ushirogouchi et al as allegedly suggesting addition of the pigment particles to the PVA photosensitive layer of Ichimura et al. Although the Examiner does not expressly so state, she apparently regards the pigment particles of Ushirogouchi et al as meeting the recitation of a "sensitizer" in applicants' claims. However, Ushirogouchi et al teach that the light-absorbing pigment provides a "light-shielding property", fluorescence or optical filtering, rather than any sensitizing function.

Ushirogouchi et al pertain to a so-called slurry photosensitive composition containing a powder of, for example, a fluorescent substance and a dye or pigment (col. 1, line 60 to col. 2, line 6). The pigment disclosed in col. 8 line 64 to col. 9, line 15 functions as a light-shielding agent, a fluorescent agent or as an optical filter, rather than as a sensitizer (col. 8, lines 26-33). In fact, Ushirogouchi et al suggest that a sensitizer, "such as a squalium dye," may additionally and optionally be used

(col.9, lines 36 - 39). Ushiroguchi et al do not suggest any "sensitizer" as defined here in the form of solid particles. Further, the acid former of Ushiroguchi et al is preferably water-soluble (col. 3, lines 31-36).

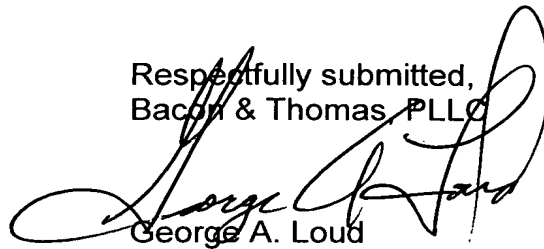
The Rejection of claims 15 and 25 for obviousness over the above combination of Ichimura et al, Fansler et al and Ushirogouchi et al, further in view of Kawamura et al is traversed for the same reasons given above. The photosensitive composition of Ichimura et al, applying the teachings of Fansler et al and Ushirogouchi et al, would not comprise "a dispersion of a photoacid generator and sensitizer," for the reasons given above. Accordingly, there would be no particles of acid generator or sensitizer to size as allegedly taught by Kawamura.

In Kawamura, the pigment particles, which are used as a photo-heat conversion compound, are encapsulated in a metal oxide such as silica gel (col. 7, lines 29-45) to form a photo-heat conversion agent. The pigment particles do not function as a sensitizer. On the contrary, as the sensitizer for an acid generator, Kawamura discloses a dye at col. 38, lines 16-51. As shown in col. 48, lines 1-44 inclusive of Table 4, the sensitizer is dissolved in MEK to form a coating liquid in the form of an organic solvent solution. Thus, Kawamura does not disclose the use of a sensitizer in the form of solid particles.

Finally, the rejection of claims 15 and 20 for obviousness, as set forth in paragraph 8 of the office action, is traversed. Even if it were obvious from Ichimura '114 to have the photosensitive composition of Ichimura '300 in the form of an emulsion, it would still lack the particulate acid generator, the particulate sensitizer and the acid-reactive insolubilizing agent.

In conclusion, it is respectfully requested that the Examiner reconsider the rejections of record in light of the present amendments and foregoing argument.

Respectfully submitted,
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Dated: May 18, 2009

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PROPOSED RESPONSE - **DO NOT ENTER**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of)	Confirmation No. 7016
ICHIMURA et al)	Examiner: JOHNSON, Connie P.
Serial No.: 10/520,106)	Art Unit: 1795
Filed: January 3, 2005)	

For: ACTIVE RAY SENSITIVE RESIN COMPOSITION, ACTIVE ENERGY RAY
SENSITIVE FILM AND METHOD FOR FORMING PATTERN USING THE
FILM

RESPONSE TO OFFICE ACTION OF DECEMBER 24, 2008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Responsive to the office action of December 24, 2008, please amend the
captioned application as follows.

IN THE CLAIMS:

Claims 1-14 (Canceled)

15. (Currently amended) A radiation-sensitive resin composition comprising:

water,

a water-soluble resin dissolved in the water,

an acid former, in the form of solid particles having an average particle diameter of 1.5 μm or less and dispersed in the water, said acid former generating an acid when irradiated with activation energy,

a spectrum sensitizer, in the form of solid particles of an electron donor having an average particle diameter of 1.5 μm or less and dispersed in the water, for sensitizing the acid generation by the acid former by absorption of light, and

an acid-reactive insolubilizing agent dissolved or dispersed in the water for converting the water-soluble resin into an insoluble form in the presence of said acid.

16. (Previously presented) The composition as recited in claim 15, further comprising a compound having at least one radically polymerizable unsaturated bond and dissolved or dispersed in the water.

17. (Previously presented) The composition as recited in claim 15, wherein said acid-reactive insolubilizing agent is an N-methylolated or N-alkoxymethylated nitrogen-containing compound, a hydroxymethylated phenol derivative or a resol resin.

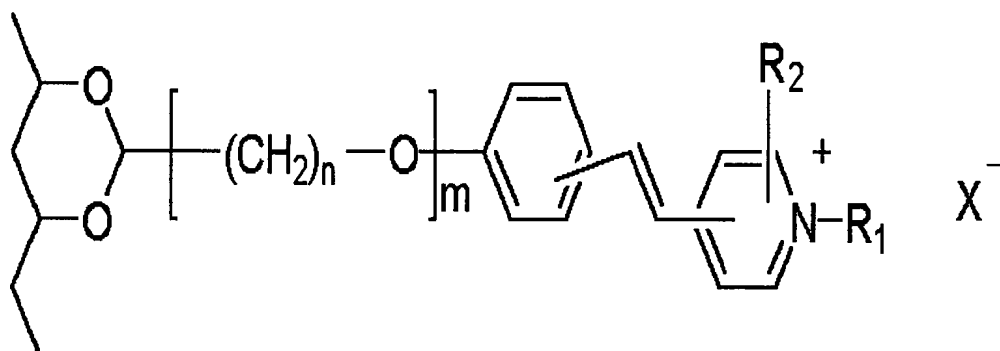
18. (Previously presented) The composition as recited in claim 15, wherein said acid-reactive insolubilizing agent is a compound having at least one epoxy group, oxetane group, vinyloxy group, isopropenyloxy group or orthoester group.

19. (Previously presented) The composition as recited in claim 15, wherein said acid-reactive insolubilizing agent has at least one formyl group.

20. (Previously presented) The composition as recited in claim 15, further comprising an aqueous emulsion of a hydrophobic polymer.

21. (Previously presented) The composition as recited in claim 15, further comprising a water-soluble, photo-insolubilizable resin.

22. (Previously presented) The composition as recited in claim 21, wherein said water-soluble, photo-insolubilizable resin is a photo-crosslinkable polyvinyl alcohol containing a styrylpyridinium group represented by the following formula (1):



wherein R_1 represents a hydrogen atom, an alkyl group or an aralkyl group, R_2 represents a hydrogen atom or a lower alkyl group, X^- represents a halogen ion, a phosphate ion, a p-toluenesulfonate ion or a mixture of these anions, m is a number of 0 or 1 and n is an integer of 1 to 6.

23. (Previously presented) The composition as recited in claim 21, wherein said water-soluble, photo-insolubilizable resin comprises poly(vinyl alcohol), casein or gelatin, and a water-soluble diazo resin or a dichromate.

24. (Previously presented) The composition as recited in claim 15, wherein said acid-reactive insolubilizing agent is present in an amount of 5 to 1,000 parts by

weight per 100 parts by weight of said water-soluble resin, said acid former is present in an amount of 1 to 100 parts by weight per 100 parts by weight of said acid-reactive insolubilizing agent, and said sensitizer is present in an amount of 5 to 100 parts by weight per 100 parts by weight of said acid former.

25. (Canceled)

26. (Previously presented) A radiation-sensitive resin film obtained by drying a layer of the composition according to claim 15.

27. (Canceled)

28. (Previously presented) A pattern forming method comprising the steps of:
irradiating a radiation sensitive resin film according to claim 26 with activation energy, and
developing the irradiated film with water.

29. (Previously presented) A pattern forming method as recited in claim 28, further comprising heating the irradiated film before said developing with water.

30. (Canceled)

31. (Canceled)

32. (Previously presented) The composition as recited in claim 15 wherein said water is the only solvent.

33. (Previously presented) The composition as recited in claim 15 which is developable with neutral water.

34. (Canceled)

35. (Previously presented) The composition as recited in claim 32 which is developable with neutral water.

36. (Previously presented) The composition as recited in claim 15 wherein the pH of the solution of water-soluble resin in water is about 7.

REMARKS

Claim 1 has been amended by incorporation of the limitations of claim 25, now canceled, and by further defining the nature of the sensitizer as taught in paragraphs [0027] and [0028] of applicants' substitute specification. Note that, as taught in paragraph [0073] of applicants' substitute specification, a small particle size is important in the context of the present invention.

An object of the present invention is to provide a radiation-sensitive resin composition, i.e. a composition not yet exposed to radiation, which can be developed with neutral water. See paragraph [0012] at page 7 of applicants' substitute specification and claims 33-35. In order to achieve the foregoing objective, the claimed invention uses an acid former and a sensitizer which are in the form of solid particles dispersed (rather than dissolved) in the water (rather than an organic solvent). The present inventors are the first to find that an acid former in the form of fine powder dispersed in water in the copresence of a sensitizer in the form of fine powder can effectively generate an acid upon being irradiated with activation ray energy. Uniquely with the present invention, excellent patterns with high resolution may be obtained even when the acid former and sensitizer are in the form of solid particles dispersed in water. See paragraph [0073] at page 30 of applicants' substitute specification.

Ichimura et al disclose at column 1, lines 38-63 as prior art, the following two types of photosensitive compounds.

The first one is a saponified poly(vinyl acetate) (referred to as PVA) to which a styrylpyridinium salt or styrylquinolinium salt (referred to as Sty) is grafted. The graft reaction proceeds as follows (see Comparative Example 7-1 on columns 13-14).



The obtained photosensitive compound PVA-Sty undergoes photodimerization

when irradiated with light as follows:

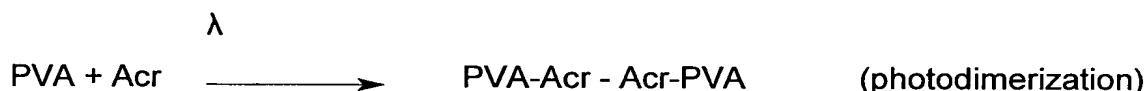


The first type of photosensitive compound PVA-Sty has a disadvantage because of its poor water resistance.

The second one is PVA to which N-methylolacrylamide or N-methylolmethacrylamide (referred to as Acr) is grafted. The graft reaction proceeds as follows (see Comparative Example 7-2 at column 14).



The obtained photosensitive compound PVA-Acr undergoes photodimerization when irradiated with light as follows:



The second type of photosensitive compound PVA-Acr has a disadvantage because of its low resolving power.

Ichimura et al pertains to improvement of the above photosensitive compounds. As described at column 6, line 60 to column 7, line 39, the photosensitive composition of Ichimura et al is prepared by condensation reaction of (1) PVA, (2) Sty and (3) Acr in the presence of an acid catalyst. In the working examples, Ichimura et al use phosphoric acid as the catalyst. The condensation reaction is as follows.

I.



The obtained photosensitive compound Acr-PVA-Sty undergoes photodimerization when irradiated with light as follows:

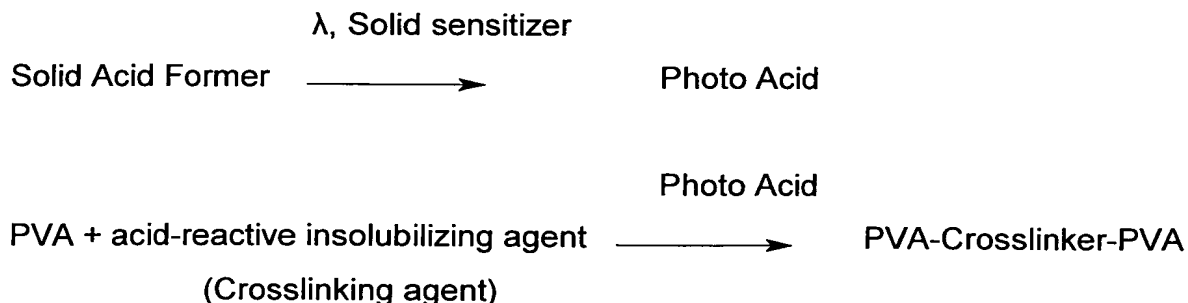
II.



While reaction I above is an acid catalyzed reaction (without generation of an acid), reaction II (with addition of a polymerization initiator after I) is not an acid-catalyzed reaction. In the office action of December 24, 2009 the Examiner repeatedly confuses the two.

The photosensitive composition Acr-PVA-Sty has improved water resistance and improved resolving power (see column 5, line 45 to column 6, line 25). The photosensitive composition Acr-PVA-Sty may optionally contain PVA-Sty and/or PVA-Acr, if desired (column 6, lines 26-59).

In contrast, the chemistry involved in the present invention is as follows:



The second reaction above can be characterized as acid-catalyzed cross-linking.

A. The Rejection of Claims 15-19, 21-24, 26, 28, 29, 32, 33, 35 and 36 for

Obviousness Over Ichimura et al in View of Fansler et al and Ushirogouchi et al.

It is respectfully submitted that the teachings of Ichimura et al have little or no relevance to applicants' invention as defined by the pending claims because the compositions of Ichimura et al do not undergo an acid-catalyzed cross-linking reaction and do not contain (1) an acid former capable of generating an acid when irradiated with light, (2) a sensitizer in the form of particles or (3) an acid-reactive insolubilizing agent (crosslinker) dissolved or dispersed in water for crosslinking a water-insoluble resin in the presence of an acid.

1. The Compositions of Ichimura et al, do Not Contain an Acid Former.

In paragraph 12 of the office action the Examiner errs where she writes:

"Ichimura teaches the photosensitive composition comprises an acid catalyst (col. 7, lines 37-39). Although not exemplified by specific examples, Ichimura does teach an acid catalyst in the photosensitive composition."

In Example 1, Ichimura et al teach that polyvinyl acetate, dissolved in water, is reacted with N-methyl-4-(p-formyl-stryl)-pyridinium methosulfate and N-methylolacrylamide in the presence of phosphoric acid (acid catalyst). The acid catalyst of Ichimura et al catalyzes the graft reaction between PVA and the photosensitive units (Sty and Acr), resulting in the formation of the polymer Acr-PVA-Sty. However, that reaction system used in formation of one component of the photosensitive composition of Ichimura et al should not be confused with the photosensitive composition in which the photosensitive polymer Acr-PVA-Sty is present in admixture with 2,4-diethylthioxanthone (a photo-sensitizer) and ethyl p-dimethylaminobenzoate (a photopolymerization initiator).

It should also be noted that the phosphoric acid used in the grafting reaction taught by Ichimura is itself an acid, not an acid donor which generates an acid when irradiated with activation energy, as recited by claim 1 here.

In the present invention no acid, such as phosphoric acid, can be present in

the claimed photosensitive composition because, otherwise, the photosensitive composition would undergo acid-catalyzed crosslinking even in the absence of light.

Parenthetically, the Examiner also errs in interpretation of Example 1 of Ichimura et al where she writes at the bottom of page 2 of the office action:

“Ichimura teaches a photosensitive composition comprising a styrylpyridinium salt compound, a polyvinyl acetate derivative and a light polymerizable ethylenically unsaturated compound (col. 6, lines 63-67 and col. 7, lines 1-39). Example 1 shows that the polyvinyl acetate derivative is dissolved in water (col. 7, lines 1-39).”

True, Example 1 of Ichimura et al does describe dissolution of polyvinyl acetate (PVA) in water. However, at the point in the process of Ichimura et al Example 1, where the polyvinyl acetate is dissolved in water, the polyvinyl acetate is not photosensitive. This reaction is the condensation reaction described at col. 6, lines 60 - col. 7, line 39 of Ichimura et al. The “photosensitive units” in the photosensitive composition of Ichimura et al are those units (“first and second groups”) grafted onto the backbone of the polyvinyl acetate, as taught at col. 5, lines 55-67. Only after reaction with N-methyl-4-(p-formyl-styryl)-pyridinium methosulfate and N-methylolacrylamide is the photosensitive resin formed and only after that formation is the composition to be developed by exposure to light formulated. Note the addition, only after the grafting reaction, of 2,4-diethylthioxanthone (a photosensitizer) and ethyl p-dimethylaminobenzoate (a photopolymerization initiator).

2. The Compositions of Ichimura et al, do Not Contain a Sensitizer in the Form of Particles.

The Examiner acknowledges this distinction at the top of page 4 of the office action.

3. The Compositions of Ichimura et al, do Not Contain an Acid-reactive Insolubilizing Agent (crosslinker).

At the top of page 4 of the office action the Examiner notes that the reaction between the PVA and the styrylpyridium salt compound taught by Ichimura et al is a crosslinking reaction. That may be true, but is not relevant to the alleged obviousness of incorporating an acid-reactive insolubilizing agent into the composition thereafter formulated wherein there is no crosslinking upon exposure to light.

B. The Allegedly Obvious Modification of Ichimura et al in View of Fansler

The Examiner misinterprets Fansler at page 4 where she writes: "However, Fansler teaches a photosensitive composition comprising a polyvinylalcohol and a photoacid generator dispersed therein." Paragraphs [0031] and [0032] of Fansler teach that their "acid donor" is present in an "acid donor layer" 14. Nowhere does Fansler suggest the presence of an "acid donor" in the separate and distinct vinyl alcohol polymer layer 16. Neither an acid nor an acid donor is present in the PVOH layer 16 prior to exposure. When the "prepolarizing article 10" of Fansler is exposed to radiant energy while being heated, a generated photoacid migrates and diffuses into the PVOH polymer layer to catalyze the dehydration thereof, thereby producing conjugated blocks of poly(acetylene) ([0074]). The exposed article is used as a polarizer. Upon exposure, nothing migrates into the photosensitive composition (PVOH layer) in the form of solid particles. The "acid donor" itself (as opposed to the "photoacid" which it generates) does not migrate into the PVOH layer in any form.

At page 4 of the office action the Examiner, with reference to Fansler, writes:

"The-photoacid generators form acid in the composition and and increase sensitivity to actinic radiation. Ichimura teaches the the same (col. 6, lines 31-35)."

The undersigned can find no such teaching in Fansler, i.e. a teaching suggesting that the photoacid generators "increase sensitivity [of what?] to radiation." Further, Ichimura et al do not even mention a photoacid generator. Thus, the Examiner's